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BBS Ltr. # 310-76

April 13, 1976



Mr. James G. Keppler, Regional Director
Directorate of Regulatory Operations - Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

SUBJECT: SUPPLEMENTAL REPORT ON UNIT-2 DIESEL GENERATOR STARTING FAILURES

References: 1) Letters from B. B. Stephenson to J. G. Keppler, Report
Nos. 50-237/1975-16, 26, 37, and 39

2) Drawing Number: M-173

Report Number: 50-237/1975-39A

Report Date: April 13, 1976

Occurrence Date: June 12, 1975

Facility: Dresden Nuclear Power Station, Morris, Illinois

INTRODUCTION

The Unit-2 diesel generator experienced a number of starting failures in 1975. Related starting failures occurred on March 17, April 15, June 4, and June 12, 1975.

On March 17, the diesel generator failed to start on the first attempt and was taken out of service. During subsequent testing, the diesel generator again failed to start. It was discovered that the pinion gears of the air start motors were not properly engaging the main ring gear. The air start motors were replaced and sent to the manufacturer (Ingersoll-Rand) for detailed examination. Ingersoll-Rand personnel were unable to find any defect in either air start motor.


On April 15, as the diesel generator was being returned to service following repairs, the pinion gears and ring gear jammed again. Although an Ingersoll-Rand representative could not pinpoint the cause of the failures, he suggested that the pilot air pressure used to engage the pinions was too high, causing the teeth to jam rather than engage. A modification which would lower the pilot air pressure was briefly under consideration; however, this was eventually discarded as an improbable solution.

The diesel generator failed to start again on June 4, following a monthly inspection. The diesel was then started a number of times in an attempt to isolate the cause of failure. The diesel generator had started 12 times without incident when, on June 12, it failed to start twice in four attempts. The same day, with a factory representative present, the diesel started six consecutive times. A surveillance program was initiated that placed an operator at the diesel each time it was started.

CORRECTIVE ACTION

As a result of the many air start failures experienced on the diesel generator, vendor representatives were summoned to the plant on November 14, 1975, to exhaustively investigate the air starting system. The ring gear was examined in detail and found to have two small, slightly gouged and burred areas. A series of 22 tests was performed, consisting of rotating the ring gear manually and engaging the pinion gears from the control switch with the main air valved out, simulating an actual start. At the two gouged and burred areas, the pinion gears failed to engage three out of six times, while at all other points on the ring gear the tests were satisfactory.

The ring gear was dressed up in these areas with a stone and file according to the vendor's recommendations. No diesel generator starting failures have occurred since the burrs were removed from the ring gear; accordingly, the air starting system difficulties are considered to be resolved.


B.B. Stephenson
Station Superintendent

JSK:smp

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